SILVERSTONE®
Designing Inspiration

ELEMENT SERIES

ST75EF

Incredible performance and efficiency

750W continuous power output
Class-leading Dual +12V rail(s) with 60A
High efficiency with 80%~85% at 20% - 100% loading
Support single PCI-E 8pin and Quad PCI-E 6pin connectors
Silent running 135mm Fan with 19dBA
Support ATX 12V 2.3 & EPS 12V

SPECIFICATION

SilverStone Element ST75EF
ATX12V 2.3 Switching Power Supply
With Active PFC
PS/2 750W

1. Input Requirements

1.1 Input Voltage

The power supply shall be operated at universal input voltage defined in the following table.

Input Voltage	Min.	Nom.	Max.
Voltage	103	115-240	264

1.2 Frequency

The input frequency range is from 50Hz to 60Hz.

1.3 Inrush Current

The max inrush current is 90A for 115VAC / 160A 230VAC.

1.3.1 Cold Start

Conditions	Limits
115/230V AC, full load. 25°C ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

1.3.2 Warm Start

Conditions	Limits
Turn off at 132/264V AC full load for 1 sec then turn on at the peak of the input voltage cycle at 25°C ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

1.4 AC Input Current

AC Input	MAX	Units
115~240V	12~6	AMPS

1.5 Efficiency

Power supply efficiency >80% at normal AC main voltage input.

2. Output Requirements

2.1 Output Regulations

Output Voltage	Range	MIN	Normal	MAX	Units
+5V	±5%	+4.75	+5.00	+5.25	Volts
+12V1	±5%	+11.40	+12.00	+12.60	Volts
+12V2	±5%	+11.40	+12.00	+12.60	Volts
-12V	±10%	-10.80	-12.00	-13.20	Volts
+3.3V	±5%	+3.14	+3.30	+3.46	Volts
+5Vsb	±5%	+4.85	+5.00	+5.25	Volts

Note:
(1) The above voltage range should also include ripple and noise.
(2) The output voltage should be measured at the terminals of output connector.

2.2 DC Load Requirements

Output Voltage	Min	Nom	Max	Units
+5V	1.0	15	30	Amps
+12V1	1.0	12.5	25	Amps
+12V2	1.0	17.5	35	Amps
-12V	0.0	0.4	0.8	Amps
+3.3V	1.0	12.5	25	Amps
+5Vsb	0.1	1.5	3	Amps

Notes:

(1) The maximum continuous total DC output power shall not exceed 750 Watts.

(2) The maximum continuous combined load on +5V and +3.3V outputs shall not exceed 180 Watts.

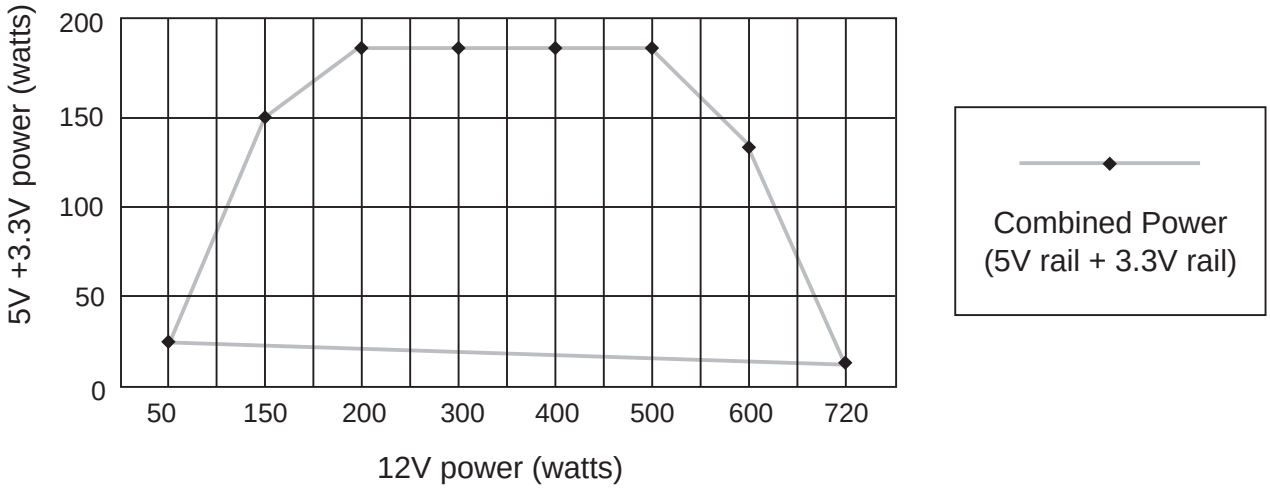
(3) The maximum continuous combined load on +12V1& +12V2 outputs shall not exceed 720 Watts (60A).

(4) The maximum continuous combined load on +5V, +3.3V and +12V1~2 outputs shall not exceed 726 Watts.

2.3 Cross Regulation

The DC loads shall remain within the ranges specified in 2-2 DC Load Requirements and the DC output voltages also shall remain within the regulation ranges specified in 2-1 Output Regulation when measured at the load end of the output connectors.

750W Cross Regulation
(+5V rail +3.3V vs. 12V)



2.4 +5V standby voltage

The +5Vsb is on whenever the AC power is present.

2.5 DC Output Voltage Ripple and Noise

Output Voltage	Ripple & Noise Max	Units
+5V	60	mV
+12V1~2	150	mV
-12V	150	mV
+3.3V	60	mV
+5Vsb	60	mV

Note :

(1) The measurements should be made by crossing a 10uF/ electrolytic and a 0.1uF ceramic disk capacitors at each output with measuring bandwidth from DC to 20 MHz. If ambient temperature is under 20°C or over 30°C, the AC input should be normal input.

2.6 Total Output Power

MAX	Units
750	Watts

2.7 Remote ON/OFFcontrol

The power supply outputs shall be enabled with an active-low TTL signal.

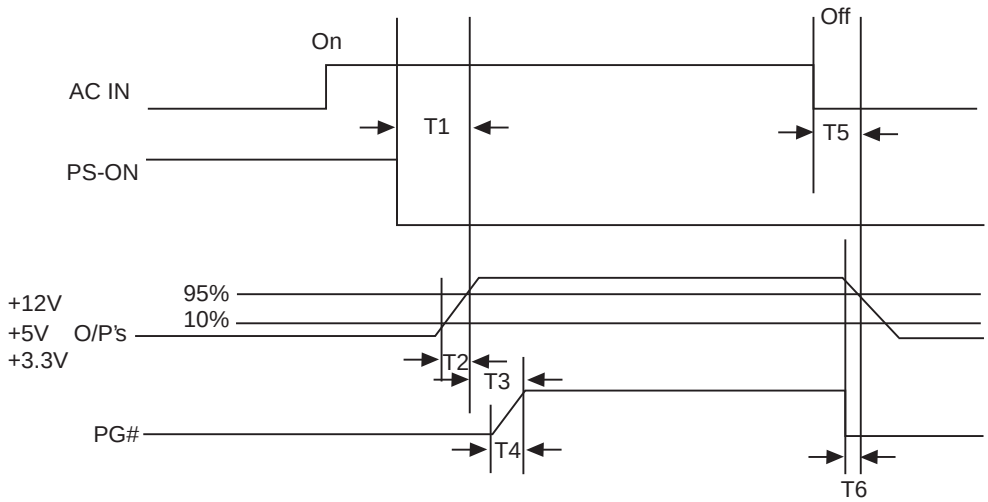
When TTL signal is low , the DC outputs are to be enabled.

When TTL signal is high or open circuited, the DC outputs are to be disabled.

Electronic means or a mechanical switch may activate the TTL signal.

After the TTL signal is active high, must wait for 3 seconds before active low again.

2.8 Power Sequence



2.9 Power On Time (T1)

MAX	Units
500	ms

2.10 Rise Time (T2)

MIN	MAX	Units
0.5	20	ms

2.11 Power Good Delay Time (T3)

MIN	MAX	Units
100	500	ms

The test environment is 25° C condition @ normal input.

2.12 Power Good Rise Time (T4)

MAX	Units
10	ms

2.13 Hold Up Time (T5)

MIN	Units
15	ms

The test environment is 25° C & full load condition @ nominal input.

2.14 Power Fail Signal (T6)

Power good signal shall go to a down level 1ms before +5V output voltage falls below the regulation limits during PS-ON signal pull high.

MIN	Units
1	ms

3. Protections

3.1 Over Voltage Protection

When the DC outputs (+5V, +12V, +3.3V) have over voltage condition, the power supply shall provide latch mode over voltage protection.

DC output	MAX	Units
+12V1~2	16	V
+5V	7	V
+3.3V	5	V

3.2 Short Circuit Protection

A short circuit placed to ground shall cause no damage or power supply shall be shutdown. (The contact resistance is 0.05 ohm when the outputs short circuit.)

3.3 Protection Reset

When the power supply latches into shutdown condition due to a fault on an+5V,+3.3V,+12V, output(OVP, UVP), the protection shall reset after the fault has been removed, use remote on/off control or recycle the AC power again for a typical of 3 seconds.

3.4 Overshoot Protection

Any output overshoot at turn on shall be less than 15% of the normal output value (with resistive load) as described in sec. 2.1.

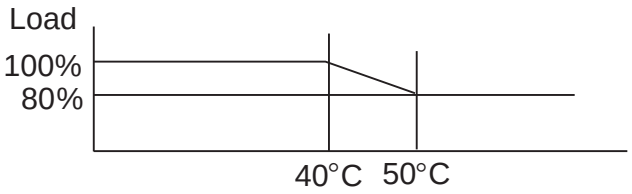
3.5 Overpower Protection

At 115/230Vac input the power supply will shut down all DC output within 110% to 140% of full load.

4. ENVIRONMENT

4.1 Operation/Storage Temperature Range

Operation : 5°Cto 50°C (normal input)
Storage : -40°C to 70°C



4.2 Humidity (none condensing)

Operation : 20% to 85% RH (normal input)
Storage : 10% to 95% RH

5. Dielectric Voltage Withstand (HI-POT)

The power supply shall withstand for 3 seconds without breakdown the application of an 1800Vac-supply voltage applied between both input line and chassis (15mA AC Cutoff current). Isolating transformers shall similarly withstand 4242Vdc applied between both primary and secondary windings for a minimum of one minute.

6. PFC

Active Power Factor Correction, complies with EN 61000-3-2: 1995+A1+A2:1998, Class D.

7. Electrostatic Discharge (ESD)

Comply with IEC 61000-4-2.

8. EFT/ Burst

Comply with IEC 61000-4-4.

9. Surge

Comply with IEC 61000-4-5.

10. M.T.B.F.

The power supply shall have a minimum mean time between failure greater than 100,000 hours at continuous operation of 100% load and an ambient temperature of 25°C.

11. MECHANICAL REQUIREMENTS

11.1 Physical Dimension

150 mm (W) × 86 mm (H) × 140 mm (D)

11.2 Connectors Define

M/B 24PIN connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Orange	+3.3V	13	1	+3.3V	Orange
Orange(22AWG)	+3.3Vsense	13			
Blue(18AWG)	-12VDC	14	2	+3.3V	Orange
Black	COM	15	3	COM	Black
Green(18AWG)	PS-ON	16	4	+5VDC	Red
Black	COM	17	5	COM	Black
Black	COM	18	6	+5VDC	Red
Black	COM	19	7	COM	Black
White	N/C	20	8	PWRGOOD	Grey (18AWG)
Red	+5VDC	21	9	+5Vsb	Purple
Red	+5VDC	22	10	+12V	Yellow
Red (22AWG)	+5Vsense	22			
Red	+5VDC	23	11	+12V	Yellow
Black	COM	24	12	+3.3V	Orange

EPS 12V8PIN connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow	+12V	5	1	COM	Black
Yellow	+12V	6	2	COM	Black
Yellow	+12V	7	3	COM	Black
Yellow	+12V	8	4	COM	Black

ATX 12V 4PIN(4+4PIN EPS 12V in split mode)

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Black	GND	1	3	+12V	Yellow
Black	GND	2	4	+12V	Yellow

4PIN peripheral connector(HDD)

4PIN floppy connector(FDD)

18AWG wire	Signal	Pin	Pin	Signal	22AWG wire
Yellow	+12V	1	1	+5VDC	Red
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Red	+5VDC	4	4	+12V	Yellow

SATA connector

18AWG wire	Signal	Pin
Orange	+3.3V	5
Black	COM	4
Red	+5V	3
Black	COM	2
Yellow	+12V	1

6PIN PCI Express Connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow	+12V	1	4	COM	Black
Yellow	+12V	2	5	COM	Black
Yellow	+12V	3	6	COM	Black

8PIN PCI Express Connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow	+12V	1	5	COM	Black
Yellow	+12V	2	6	COM	Black
Yellow	+12V	3	7	COM	Black
Black sense1	COM	4	8	COM	Black

To be valid, this sheet must be filled out by
your salesperson at the time of purchase.

Store :
Purchaser :
Purchase date :
Model No. :
Serial No. :

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